REMARKS

Claims 1-9 have been rejected by the Examiner under 35 USC 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicants regard as the invention. This rejection is respectfully traversed.

The Examiner argues that claims 1-9 are indefinite because no specific composition for the material is set forth and that an article characterized by physical properties alone is vague and indefinite. Also, the Examiner argues that claims 1-9 do not define what the bottom temperature limit and top temperature limit are or how they are calculated. Furthermore, claims 7-9 are considered indefinite because the expression "determining" has not been definite. These rejections are respectfully traversed.

The present invention is directed to an ink which transfers easily under pressure and to a method whereby it is possible to select an ink which transfers readily. According to the present invention, it has been surprisingly discovered that the deformation energy of the ink is a significant index indicating the ease at which the ink can be transferred to a receiving material. Thus, the present invention is based upon the

recognition that for an indirect ink jet process it is particularly advantageous to use an ink that has a deformation energy of less than 20 x 10^5 Pa.s. Thus, inks having certain physical properties, that is, inks which are pressure transferable and have a relatively low deformation energy can advantageously be used in indirect ink jet printing processes. These physical properties are clearly set forth in independent claims 1 and 7 of the present application.

The Examiner alleges that the claims are indefinite because no specific composition for the ink is claimed. However, as is readily apparent from the four corners of the present application, the present invention is not restricted to specific ink compositions but rather to the identification of certain inks, irrespective of the actual chemical composition thereof, which possess the deformation energy which is effective in establishing the ease with which inks can be transferred to a receiving material. Thus, it has been surprisingly discovered that it is the deformation energy that is an important index of the ease with which inks transfer, and not, as known from the prior art, the compressive yield stress of an ink. Accordingly, it should not be required to restrict the claims of the present application to specific embodiments, for example, as shown in Table 2 of the present application.

The Examiner further alleges that the claims are indefinite because they do not define what the bottom temperature limit and the top temperature limit are or how to calculate these limits. However, it is clearly described in the present application that these limits define the temperature range where the ink is pressure-transferable, that is, the temperature range wherein the transfer yield is higher than 90% (see, for example, Examples 2 and 3 of the present application, and in particular, page 9, lines 5-7 and page 10, lines 26-32 of the present application). Thus, the top temperature limit is the temperature of the transfer element at which the transfer yield is just 90%. Above this temperature, there will be a more cohesive breakage of an ink drop for transfer, and the yield will drop and in most cases reach a value of around 5%. The bottom temperature limit is the temperature at which the yield is just 90%. Below this temperature, the ink will not be able to deform sufficiently for a sufficient transfer. The lower the temperature, the more the ink will assume a rigid consistency and finally not transfer at all. In Examples 2 and 3 of the present application, a method is described to determine these bottom and top temperature limits.

Finally, the Examiner alleges that claims 7-9 are indefinite because the expression "determining" has not been defined. In particular, the expression allegedly does not

define how to determine that an ink is pressure-transferable, how the top temperature limit is determined and how the deformation energy is measured. With respect to the determination of whether or not an ink is pressure-transferable, this aspect is described in detail in Example 2 of the present application. The first method for making such a determination is provided with reference to the prior art on page 8, lines 16-18 of the present application. A second practicable method is described starting from page 8, line 19 of the present application.

With respect to determining the top and bottom temperature limits, these temperature limits follow from the method as described in Example 2 with reference to Example 3. The latter example explicitly describes how to determine the top and bottom temperature limits if an ink is pressure-transferable (see page 9, lines 10-12).

Various ways for measuring the deformation energy are described in the present application. In Example 5, a first method is described that is effective but only applicable for certain types of inks (see page 12, lines 25-27). In Example 6, an alternative method is described which can be applied for any type of ink (see page 13, lines 23-24). In Example 6, a third method for measuring the deformation energy is described which is suitable for inks having a deformation energy larger than 25

x 10^5 Pa.s. (see page 14, lines 30-35 of the present application). Thus, it is believed that the Examiner's allegations that the claims are indefinite is strongly challenged since the invention itself is very explicitly described in the present application and claimed in the claims of the present application.

Claims 1-6 have been rejected by the Examiner under 35 USC 102(b) as being anticipated by Everhardus et al., U.S. Patent 6,072,986. This rejection is respectfully traversed.

First of all, it should be recognized by the Examiner that the claims recite that the ink has a composition such that it is pressure-transferable at a temperature between a bottom temperature and a top temperature limit and furthermore the ink has a deformation energy of less than 20 x 10^5 Pa.s at a temperature equal to the top temperature limit. Where in the Everhardus et al. can any reference be found relating to a deformation energy of less than 20 x 10^5 Pa.s? A rejection under 35 USC 102 must contain all of the limitations recited in the Applicants' claims. Such is not the case in the Examiner's present rejection and thus a rejection under 35 USC 102(b) is clearly not proper. Even if, for purposes of argument, the Examiner rejects the claims under 35 USC 103, such a rejection is also improper. Thus, the Examiner has surprisingly found that a deformation energy is an important index for selecting

specific inks within an extremely large number of inks which are effective for achieving the transfer of the ink to a receiving material. Thus, the Applicants have identified a parameter not recognized in the prior art and have further recognized a limitation on this parameter, that is, a limitation on the deformation energy of being less than 20×10^5 Pa.s which is effective in identifying and selecting specific inks which are readily transferable to a receiving material. Accordingly, since there is no explicit evidence or any suggestion whatsoever that known inks have a very low deformation energy, and since, in a direct printing process, the deformation energy is not a relevant physical property, it is certainly unlikely that known inks are designed to have such low deformation energy.

In addition, even if arguendo, deformation energy of one or more of the known inks will be less than the claimed amount, this does not mean that the presently claimed inks are anticipated or even rendered obvious in view of the prior art. Thus, the claimed inks are also restricted to be pressure-transferable. In order to be pressure-transferable, the inks have to meet various specific physical requirements as is commonly known in the art (see, for example, the Journal of Imaging Science and Technology, Vol. 40, No. 5, Sept/Oct 1996, pp. 386-389). There is no indication whatsoever that the inks as known from Everhardus et al. are designed to be pressure-

transferable. On the contrary, the application of the known inks is only suggested for use in a direct ink jet printing process. Since the physical requirements for an ink for use in a direct printing process differ completely from the requirements for an ink for use in an indirect process, as indicates the present invention, it is logical to presume that the known inks of the Everhardus et al. patent are not pressure-transferable.

Accordingly, in view of the above amendments and remarks, reconsideration of the rejections and allowance of the claims of the present application are respectfully requested.

CONCLUSION

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Joseph A. Kolasch (Reg. No. 22,463) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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Attachment(s): Abstract of the Disclosure